Three-Year Implementation Tracking Progress Report of the Morro Bay Pathogen Total Maximum Daily Load (TMDL)

Listed Waterbody: **Morro Bay, *including Chorro, Chumash, Dairy, Los Osos, Pennington, San Bernardo, San Luisito, Walters and Warden Creeks***

Listed Condition: **Pathogens**

Progress Report: **Implementation Tracking**

This progress report describes the status of implementation of the Morro Bay Pathogen Total Maximum Daily Load (TMDL) as of April 2007. The evaluation includes analysis of data the Morro Bay National Estuary Program's Volunteer Monitoring Program collected within the Bay and watershed, including the following tributaries: Chorro, Chumash, Dairy, Los Osos, Pennington, San Bernardo, San Luisito, Walters and Warden Creeks as well as additional data from the Department of Health Services.

On May 16, 2003, the Central Coast Waterboard adopted Resolution No. R3-2002-0117 (Attachment A available online[1]) as a Basin Plan Amendment. The TMDL became effective on November 19, 2003 when it was approved as a Basin Plan amendment by the Office of Administrative Law. Originally, only Morro Bay was on the 303(d) list for pathogens however the TMDL Project Report addressed all tributaries that flow into Morro Bay so the subsequently listed waterbodies, Chorro, Chumash, Dairy, Los Osos, Pennington, San Bernardo, San Luisito, Walters and Warden Creeks, are also addressed in this TMDL evaluation. This progress report represents a three-year evaluation of the monitoring and implementation efforts of the TMDL. This report addresses three questions: is water quality improving, are implementation measures moving forward, and are there any course corrections that need to be taken?

Is water quality improving?

No. Staff did not find any noticeable improvements in water quality in either the Bay or the watershed from 2002 to 2007. Staff evaluated monitoring data from the Morro Bay National Estuary Program's (Estuary Program) Volunteer Monitoring Program from 2002 to 2007 and *E. coli* concentrations were *generally* the same over this four to five year period (see Appendix Two). The TMDL established fecal coliform numeric

[1] http://www.waterboards.ca.gov/centralcoast/TMDL/303dandTMDLprojects.htm

targets (see Tables 1 and 2) and compliance with the TMDL is indicated when these numeric targets are met. Numeric targets were set forth in terms of fecal coliform; however monitoring and determination of compliance with the TMDL is being measured using *E. coli* concentrations. Staff used the geometric mean of 126 MPN/100 mL to determine compliance with the tributaries to Morro Bay and converted *E. coli* concentrations into fecal coliform by multiplying by 1.2 (see Morro Bay Pathogen TMDL pg. 45) to determine compliance with the Bay sites. Although staff didn't see an improvement at this point, all implementation measures are not in place yet and the TMDL Project is only at year three of a ten-year timeframe.

Table 1: Numeric targets for Morro Bay, based on regulations that DHS follows

Fecal Coliform	
Geometric Mean	**Maximum**
14 MPN/100 mL[a]	43 MPN/100 mL[b]

a: Based on the geometric mean of monthly sampling evaluated over an annual and triennial basis
b: No more than 10% of total samples may exceed this number when evaluated over an annual and triennial basis
Source: United States Department of Health and Human Services Food and Drug Administration's National Shellfish Sanitation Program 1990

Table 2: Numeric targets for the tributaries to Morro Bay, based on Basin Plan regulations

Fecal Coliform	
Geometric Mean	**Maximum**
200 MPN/100 mL[a]	400 MPN/100 mL[b]

a: Geometric mean of not less than five samples over a period of 30 days
b: Not more than 10% of total samples during a period of 30 days exceed
Source: Regional Water Quality Control Board, Basin Plan 1994

Staff evaluated data the Estuary Program's Volunteer Program collected at 13 sites in the watershed. In the watershed, the geometric means were usually in the hundreds or below and rarely reached the thousands. Although levels at these monitoring sampling sites did not meet the suggested *E. coli* criteria set forth by EPA (geometric mean equal to 126 MPN/100 mL), they were not as high as levels staff has observed in other watersheds on the Central Coast.

Staff evaluated data from the Estuary Program's Volunteer Program collected at seven sites in the Bay. The Bay sites were not consistently meeting the geometric mean of 14 MPN/100 mL for fecal coliform, which is approximately 11 for *E. coli* (assuming *E. coli* typically makes up 80% of fecal coliform). There were some time periods where the numeric target was met, but not often. The Bay sites that are closer to the seeps (see Appendix Three for locations) had higher geometric means on average than the other Bay sites but other Bay sites didn't always meet the numeric targets either.

The Department of Health Services (DHS) and the oyster growers have also collected fecal coliform data in the Bay. Staff evaluated the data from DHS in terms of the number of days the oyster leases are closed due to events other than standard rainfall

closures (e.g. sewage spills or unexplained elevated levels of fecal coliform). The numbers of closure days are not decreasing (see Appendix Four), which also indicates that water quality is not improving.

Are implementation measures moving forward?
Yes. Implementing parties such as the Estuary Program, the Harbor Department and the Farm Bureau have made a lot of progress in the last three years in terms of implementation measures moving forward. Implementation measures, which are outlined in more detail in the TMDL Project Report, are discussed below in Table 3.

Table 3: Status of implementation measures

1	Grazing Management	<u>What has happened:</u>
		• Approximately one mile of fencing was installed on San Bernardo Creek and a tributary to San Luisito Creek in 2006 (source: Estuary Program).
		• The Hollister Ranch acquisition was completed in 2003 and riparian fencing along that 1.5 mile reach of Chorro Creek was installed in 2004. Construction of a floodplain restoration project, which may help reduce bacterial levels, will begin in 2008 or 2009 (source: Estuary Program).
		  ○ The Estuary Program and the Trust for Public Lands worked together to purchase the 580-acre Hollister Ranch on Chorro Creek. Located adjacent to Chorro Creek, this project has a larger floodplain area than Chorro Flats, and is expected to be an effective means of capturing sediment once levees are removed to restore the floodplain (source: Morro Bay Sediment TMDL).
		• Chorro Flats restoration project is complete and may be working to reduce bacterial levels as the water flows through this area (source: Estuary Program).
		  ○ The Chorro Flats Enhancement Project was constructed in 1997 and essentially reconnected Chorro Creek with its historical floodplain, thereby allowing sediment to be deposited there instead of in Morro Bay (source: Morro Bay Sediment TMDL).
		  ○ *E. coli* levels are consistently higher upstream of Chorro Flats and lower downstream (source: Estuary Program's Volunteer Monitoring Data).
		• On January 31, 2007, the Farm Bureau hosted a "Cut the Crap" workshop that dealt with grazing management practices as related to pathogen issues. Approximately 20 people from the Morro Bay watershed attended (80 people in total) (source: Farm Bureau).
		• Riparian fencing was installed along 0.75 miles of Walters Creek in 2004 (source: Estuary Program).

		What is planned: • The Estuary Program is working with many different landowners to install fencing along the riparian corridor, including additional fencing on Walters, San Luisito, and Chorro Creeks, and various tributaries on Camp SLO. These projects are funded in part through a Waterboard enforcement settlement which provided a "Supplemental Environmental Project." Waterboard staff (Matt Thompson) is receiving biannual progress reports. Project Clearwater is also involved in these fencing efforts, and is concurrently working on numerous ranch management plans throughout the Chorro watershed (source: Estuary Program). o Project Clearwater is a program that provides technical assistance and cost sharing to install management practices and is led by the Coastal San Luis Resources Conservation District (source: Morro Bay Sediment TMDL). • The Estuary Program's Volunteer Monitoring Program is planning to continue sampling above and below Chorro Flats to better inform the hypothesis that Chorro Flats may be acting as a bacteria sink or treatment area (source: Estuary Program).
2	Boat Management, Pump-outs	What has happened: • The Morro Bay Harbor Department continues to have pump-outs at the following locations and they are free of charge (source: Harbor Department): o City T-Pier o City Launch Ramp Dock o Marina Square (699 Embarcadero) o Morro Bay Yacht Club (541 Embarcadero) o There was a pump-out installed at the Bay Front Marina (201 Main Street) but it has not been operational lately. Their lease is up this year and a requirement for any new lease or extension will be to have the pump-out fixed or replaced. What is planned: • The City of Morro Bay has new "operability" regulations should help reduce the number of non-functional boats on City moorings (source: Harbor Department). • Also see box no. 5 "Manage live aboard boating situation."
3	Remove unpermitted moorings	What has happened: • All unpermitted moorings have been removed from the Windy Cove area of the Estuary (source: Estuary Program). What is planned: • The Estuary Program, California Department of Fish and

		Game and the Harbor Department will ensure no new unpermitted moorings are established in the Estuary (source: Estuary Program).
4	Remove derelict boats	<u>What has happened:</u> • The Estuary Program removed seven derelict boats in the Back Bay (source: Estuary Program). <u>What is planned:</u> • The Estuary Program will continue to partner with the Harbor Patrol, California Department of Fish and Game, and others to address and remove derelict boats throughout the entire Estuary. There are a handful of day-sailor boats near Baywood, but none are live-aboards and so they should not be contributing to elevated pathogen indicator organism levels (source: Estuary Program).
5	Manage live aboard boating situation	*(The following section taken in part from the May 3, 2007 Harbor Advisory Board Meeting Staff Report).* <u>What has happened:</u> • In September 2004, the Harbor Department stated there were 27 current liveaboard permits and 10 permit renewals underway in some form. There were approximately 20 or so likely liveaboards without permits at that time. In April 2007, there were 28 current permits and the Harbor Department estimated approximately 20-30 without permits. • Why was there a moderate increase in un-permitted liveaboards? There is a segment of the liveaboard population that have never gotten permits for various reasons, and those numbers seem to have risen somewhat in recent years with the housing crunch and other factors, including the Fish & Game eviction of the vessels moored in the back bay. In addition, enforcement is difficult for the Harbor Department due to staffing and logistical measures required; however, these efforts should be simplified with the completion of the Administrative Citation process that the City of Morro Bay is currently developing (see below in the "what is planned" section). <u>What is planned:</u> • The Harbor Department is in the process of completing an internal review of its' own operations to implement new approaches and organizational structures. For example, they are moving to specific task assignments within the Harbor Patrol Officers unit (see below bullet). This, along with the new administrative cite process in the City, should allow the Harbor Department to improve liveaboard ordinance enforcement over

		the next year (2007-2008). • The Harbor Director has recently assigned an officer as a Liveaboard Coordinator. With input and guidance from the Harbor Director, the position will be responsible for overall management of the liveaboard program, including increased emphasis on active enforcement with assistance from the other officers as required.
6	Educate public about proper boat waste disposal	<u>What has happened:</u> • The Estuary Program developed a sign that provided information about using the pump-outs (see Appendix One). Signs were posted in: the waterfront bathrooms (State Park Marina, Tidelands, Morro Bay Blvd.) and at the Harbor office area public bathroom. Two were also posted at Sub-Sea Tours (for individuals that use slips to secure their boats) and in the bathroom at Marina Square. The signs went up in late 2004, approximately at the end of the summer (source: Estuary Program). <u>What is planned:</u> • No future plans regarding more education at this point as the signs remain in place.
7	Pet waste management	<u>What has happened:</u> • About 30 mutt-mitt dispensers are installed in or around the Bay. 100,000 mitts were used in 2006 (source: Estuary Program). • The Estuary Program has tips on reducing your pet's impact on the Bay in an informational packet that visitors can collect (source: Estuary Program). <u>What is planned:</u> • The Estuary Program will continue to fund the mutt-mitts program through at least 2009, supported in part by private donations (source: Estuary Program).
8	Septic system maintenance	<u>What has happened:</u> • No progress on septic system maintenance has been made at this point (source: conversation with County of San Luis Obispo staff). <u>What is planned:</u> • The County of San Luis Obispo is currently rewriting ordinance that will be consistent with AB 885[2]. The County expects this ordinance to go before their Board in August or September 2007. The ordinance states that every five years, owners of

[2] Assembly Bill 885 is legislation related to statewide minimum standards for onsite sewage treatment systems.

		individual septic systems need to get their septic systems inspected. The County will be sending letters to septic system owners to let them know of their inspection requirements. C42 contractors (contractors with the State of California who inspect septic systems) will be the inspectors. The C42 contractors will send their inspection reports to the County to inform the County of their results. Once a year, the County will go with the C42 contractors to inspect the work they are doing (source: conversation with County of San Luis Obispo staff).
9	Spay/neuter pets	<u>What has happened:</u> • The Division of Animal Services continues to spay and neuter animals. They have not seen a general increase or decrease in the amount of animals coming into their facility in the last three years (2004-2007) (source: Division of Animal Services). <u>What is planned:</u> • See Phase 2 Stormwater Permit (no. 11) below.
10	Reduce number of feral dogs/cats	<u>What has happened:</u> • The Division of Animal Services continues to spay and neuter pets. They stated that there does not seem to be a decrease in the feral cat population, however, this is hard to measure (source: Division of Animal Services). <u>What is planned:</u> • See Phase 2 Stormwater Permit (no. 11) below.
The following are implementation actions required of responsible dischargers under existing regulatory programs. Their status affects the TMDL.		
11	Phase 2 stormwater permit	<u>What has happened:</u> • On March 23, 2007, the Central Coast Waterboard adopted the County of San Luis Obispo's Stormwater Management Program. This Plan covers the Baywood/Los Osos area. The plan includes many measure to reduce/control pet waste such as: o PE18A: Provide educational materials and mutt mitt stations in all County Parks in the permit coverage area by Year 3. Maintain mutt mitt supplies on an ongoing basis. o PE18B: Adopt a pet waste ordinance including enforcement provisions by the end of Year 2. Publicize the pet waste ordinance on an ongoing basis. o PE18C: Distribute pet waste management brochures with dog license renewals. o PE18D: Distribute pet waste management brochures at Animal Shelters, Pet Stores,

		Veterinarian Offices, 4H Clubs, and Farm Supply Stores in the permit coverage area. o PE 18E: Post pet waste management public education and outreach information on the County website. o PE 18F: Distribute pet waste management educational information to general residential audiences using radio and TV PSAs. o PE18G: Promote humane society and other nonprofit organizations dedicated to trap, neuter, and release/adopt programs for feral cats and dogs. o PE 18H: Promote spay/neuter assistance programs to reduce feral cat and dog populations. o PEI: Provide spay/neuter educational materials and other information to promote responsible pet ownership through the Animal Services Division. o PEJ: Promote the use of off leash dog parks in County Parks. o IL11A: Adopt and enforce a pet waste ordinance according to schedule. <u>What is planned:</u> • All the above actions should begin by March 22, 2010 at the latest, but most of the above actions will begin by 2007 or 2008. • The City of Morro Bay's Stormwater Management Program (hence permit coverage) is not scheduled to go before the Board at this time. Waterboard staff estimates the permit may go before the Board in mid 2008 or 2009. This timeframe is uncertain.
12	Los Osos Community Waste Water Treatment Plant	<u>What has happened:</u> • Work on the wastewater treatment plant stopped in October 2005. On January 1, 2007, AB 2701 turned the planning of the wastewater treatment plant from the Los Osos Community Services District to the County of San Luis Obispo. The County is still evaluating what type of system to implement. At the end of 2007, there will be a Benefits Assessment Vote. This will determine if the County will go forward with the project (source: Central Coast Waterboard staff). <u>What is planned:</u> • The County will continue the AB2701 process and, if successful, will develop financing for and community agreement to build a system to treat and eliminate the wastewater (source: Central Coast Waterboard staff).

Are we on track? Are there any proposed course corrections?
Yes. Although we have not seen water quality improvements at this point, there are still many more implementation measures to go into place such as stopping the discharge from septics in the Los Osos area and installing more fencing in the watershed.

No. There are no proposed course corrections (changes to TMDL Numeric Targets, Allocations, Monitoring or Implementation Plan) at this point.

Attachments:

Appendix One – Estuary Program's Boater Outreach Sign
Appendix Two – Data Evaluation
Appendix Three – Monitoring Locations
Appendix Four – Shellfish Bed Closure Days